

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Martin VORBACH

Serial No. : 10/551,891

Filed : August 28, 2006

For : METHOD FOR INCREASING
CONFIGURATION RUNTIME OF TIME-
SLICED CONFIGURATIONS

Examiner : Keith E. Vicary

Art Unit : 2183

Confirmation No. : 3388

Customer No. : 26646

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I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office via the Office electronic filing system on *February 7, 2010*.

Signature: /Aaron Grunberger/
Aaron Grunberger (Reg. No. 59,210)

AMENDMENT AFTER A FINAL OFFICE ACTION

SIR:

This paper addresses the Final Office Action of August 7, 2009. Applicant hereby respectfully requests a **three-month extension of time** in which to respond to the Office Action dated August 7, 2009 for which a response period expiring on November 7, 2009 was set. The extended period expires on **February 7, 2010**. Please charge the **\$555.00** (small entity) extension fee to a credit card. If there are any additional fees associated with this paper, please charge Kenyon & Kenyon LLP's Deposit Account No. **11-0600**.

Initially, please amend the above-captioned application without prejudice as follows:

Amendments to the Claims are found in the listing of claims, which begins on page 2 of this paper.

Remarks begin on page 5 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-4. (Canceled).

5. (Currently Amended) A method for operating a reconfigurable unit having runtime-limited configurations, comprising:

processing in accordance with a first configuration having a maximum allowed runtime;

increasing, by ~~[[a]]~~ the first configuration, the first configuration's maximum allowed runtime;

if an interrupt occurs, suppressing the increase in response to the interrupt; and

if no interrupt occurs, reconfiguring the reconfigurable unit with a second configuration in response to expiry of the increased maximum allowed runtime, the increased maximum allowed runtime expiring ~~due to suppression by if the first configuration, in a non-error operation and for~~ at least one of a task switch and a thread switch ~~of a~~ of ~~does not~~ further increase of the maximum allowed runtime.

6. (Currently Amended) The method of claim 5, wherein the first configuration triggers a parallel counter to perform the increasing.

7. (Currently Amended) The method of claim 5, ~~further comprising: determining whether a processing of the interrupt requires handling within the maximum allowed runtime, wherein an~~ where a determination in the determining step is that the interrupt whose processing requires handling within the maximum allowed runtime ~~, the interrupt is handled on a component reserved for handling of interrupts whose processing requires requiring immediate handling within the maximum allowed runtime and on which the first configuration is not run.~~

8. (Currently Amended) A method for operating a reconfigurable unit having runtime-limited configurations, comprising:

processing in accordance with a configuration having a maximum allowed runtime;

~~determining by the configuration whether extension of the maximum allowed runtime is usable by the configuration;~~

~~responsive to a positive determination in the determining step,~~ triggering an increase, by the configuration, of the configuration's maximum allowed runtime; and

responsive to an interrupt, suppressing [[the]] an increase by the configuration of the maximum allowed runtime to respond in response to [[an]] the interrupt by expiry of the maximum allowed runtime.

9. (Currently Amended) A method for operating a reconfigurable unit having runtime-limited configurations, comprising:

increasing, by a configuration having a maximum allowed runtime, the configuration's maximum allowed runtime;

suppressing the increase in response to an interrupt; and

reconfiguring the reconfigurable unit with a new configuration for handling the interrupt responsive to expiry of the maximum allowed runtime.

10. (Currently Amended) A method for operating a reconfigurable unit having runtime-limited configurations, comprising:

processing in accordance with a first configuration having a maximum allowed runtime; and

if an interrupt does not occur:

the first configuration triggering a counter reset, the counter reset increasing the maximum allowed runtime;

subsequent to the counter reset, and ~~in a non-error operation~~ for a scheduled task switch, the counter counting to the increased maximum allowed runtime without a retriggering of the counter by the first configuration; and

responsive to the reaching of the increased maximum allowed runtime, performing one of a task switch and a thread switch by reconfiguring the reconfigurable unit with a second configuration;

wherein, if an interrupt does occur occurs, responsive to the occurrence of the interrupt, the maximum allowed runtime is not increased.

11. (Previously Presented) A reconfigurable unit, comprising:
configurable cells configurable with a configuration having a maximum allowed runtime, wherein the configuration is adapted to trigger a counter reset to increase its maximum allowed runtime conditional at least upon that an interrupt is not detected and processing is to continue without a thread switch and without a task switch.

REMARKS

I. Introduction

Claims 5 to 11 are currently pending in the present application. In view of the foregoing amendments and following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicant thanks the Examiner for considering the previously filed Information Disclosure Statements, PTO-1449 papers, and cited references..

II. Objection to the Claim 10

Claim 10 has been amended herein to obviate the present objection. Withdrawal of the objection to claim 10 is therefore respectfully requested.

III. Double Patenting

Claims 5 to 11 were provisionally rejected as unpatentable over co-pending Application No. 10/501,845. Such a rejection does not require filing of a Terminal Disclaimer or other response unless the claims of the cited application actually issue, and the double patenting rejection remains as the sole remaining rejection in this application. Applicant thanks the Examiner for the notification, and will respond further to this rejection when the rejection is no longer provisional, as required by the patent rules.

IV. Rejection of Claims 5 to 8 and 10 Under 35 U.S.C. § 112, ¶ 1

Claims 5 to 8 and 10 were rejected under 35 U.S.C. § 112, ¶ 1 as assertedly failing to comply with the written description requirement. While Applicant disagrees with the merits of this rejection, claims 5, 7, 8, and 10 have been amended herein without prejudice, thereby obviating the present rejection.

Claim 7 has been amended as suggested by the Examiner. As regards claims 5 and 10, support for the amendments to the claims may be found in the Substitute Specification, e.g., at page 19, line 3. As regards claim 8, support for the amendments to the claims may be found in the Substitute Specification, e.g., at page 19, lines 1 to 6, 16, and 17.

Withdrawal of this written description rejection of claims 5 to 8 and 10 is therefore respectfully requested.

V. Rejection of Claim 9 Under 35 U.S.C. § 112, ¶ 2

Claim 9 was rejected under 35 U.S.C. § 112, ¶ 2 as assertedly being indefinite. While Applicant disagrees with the merits of this rejection, claim 9 has been amended herein without prejudice, thereby rendering moot the present rejection.

Withdrawal of this indefiniteness rejection of claim 9 is therefore respectfully requested.

VI. Rejection of Claims 5, 8, and 9 Under 35 U.S.C. § 103(a)

Claims 5, 8, and 9 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of U.S. Patent No. 6,076,157 (“the Borkenhagen reference”) and U.S. Patent No. 6,658,564 (“the Smith reference”). It is respectfully submitted that the combination of the Borkenhagen and Smith references does not render unpatentable any of the present claims, and the present rejection should be withdrawn, for at least the following reasons.

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied.

First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). As clearly indicated by the Supreme Court, it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *See KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.*, at 1741.

Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986).

Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

As explained herein, the Office Action does not satisfy these requirements of § 103 as to all of the features of the claims, as presented herein.

Claim 5 relates to a method for operating a reconfigurable unit and recites “increasing, by the first configuration, the first configuration’s maximum allowed runtime.” The Borkenhagen reference provides for a timeout of a thread if the thread is unable to perform useful processing. The Office Action asserts that, according to the Borkenhagen reference, the continued processing by the thread therefore increases its maximum allowed runtime because the timeout period will be restarted, and therefore discloses the increasing step of claim 5.

However, claim 5 further recites “suppressing the increase [of a configuration’s maximum allowed runtime] in response to the interrupt.” The Office Action refers to column 22, lines 4 to 6 of the Borkenhagen reference as assertedly disclosing this feature. Applicant disagrees. The cited section merely indicates that the occurrence inability by an active thread to perform useful processing coincides with an inactive thread waiting to service an interrupt. The cited section does not state that the interrupt causes the ability by the active thread to perform the useful processing. Indeed, the terse language of the claim at the cited portion – column 22, lines 4 to 6 – refers to the description at column 14, lines 44 to 47, which indicates that the reason for using a timeout in the case of a thread that does not perform useful processing is because of an undesirable latency in the inactive thread to service the interrupt. Thus, the failure to increase the maximum allowed runtime in the Borkenhagen reference (which, according to the Office Action, refers to the failure by the active thread to perform useful processing) is not in response to an interrupt, but is merely indicated in the Borkenhagen reference as possibly occurring at such time that an inactive thread waits to service the interrupt.

Furthermore, claim 5 additionally provides for an instance where a further increase of the maximum allowed runtime is suppressed by a task or thread switch. The Office Action refers to column 14, lines 48 to 50 as assertedly disclosing this feature. The cited section merely indicates that the time is not increased if an active thread does not have useful processing. Should that occur, then, once the time expires, a thread switch may be executed, but the thread switch does not suppress the active thread from performing useful processing (which is relied upon by the Office Action as assertedly disclosing the increasing of the maximum allowed runtime).

The Smith reference does not correct these critical deficiencies of the Borkenhagen reference.

For all of the foregoing reasons the combination of the Borkenhagen and Smith references does not disclose or suggest all of the features of claim 5, and therefore does not render unpatentable claim 5.

Claim 8 relates to a method for operating a reconfigurable unit and recites “responsive to an interrupt, suppressing an increase by the configuration of the maximum allowed runtime to respond to the interrupt by expiry of the maximum allowed runtime.” As noted above with respect to claim 5, the combination of the Borkenhagen and Smith references does not disclose or suggest this feature, and therefore does not render unpatentable claim 8.

Claim 9 relates to a method for operating a reconfigurable unit and recites “suppressing the increase [of the maximum allowed runtime] in response to an interrupt.” As noted above with respect to claim 5, the combination of the Borkenhagen and Smith references does not disclose or suggest this feature and therefore does not render unpatentable claim 9.

Withdrawal of this obviousness rejection of claims 5, 8, and 9 is therefore respectfully requested.

VII. Rejection of Claim 6 Under 35 U.S.C. § 103(a)

Claim 6 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the Borkenhagen and Smith references, in further view of U.S. Patent No. 6,665,758 (“the Frazier reference”) and Parallel Counters For Signed Binary Signals (“the Parhami reference”). It is respectfully submitted that the combination of the Borkenhagen, Smith, Frazier, and Parhami references does not render unpatentable claim 6, and the present rejection should be withdrawn, for at least the following reasons.

Claim 6 depends from claim 5 and is therefore allowable for at least the same reasons as claim 5, since the Frazier and Parhami references do not correct the critical deficiencies of the combination of the Borkenhagen and Smith references noted above.

Withdrawal of this obviousness rejection of claim 6 is therefore respectfully requested.

VIII. Rejection of Claims 10 and 11 Under 35 U.S.C. § 103(a)

Claims 10 and 11 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the Borkenhagen, Smith, and Frazier references. It is respectfully submitted that the combination of the Borkenhagen, Smith, and Frazier references does not render unpatentable either of claims 10 and 11, and the present rejection should be withdrawn, for at least the following reasons.

Claim 10 relates to a method for operating a reconfigurable unit and recites “if an interrupt does occur, responsive to the occurrence of the interrupt, the maximum allowed runtime is not increased.” As noted above in support of the patentability of claim 5, the combination of the Borkenhagen and Smith references does not disclose or suggest this feature. The Frazier reference does not correct this critical deficiency of the combination of the Borkenhagen and Smith references.

Accordingly, the combination of the Borkenhagen, Smith, and Frazier references does not disclose or suggest all of the features of claim 10, and therefore does not render unpatentable claim 10.

Claim 11 relates to a reconfigurable unit and recites that a “configuration is adapted to trigger a counter reset to increase its maximum allowed runtime conditional at least upon that an interrupt is not detected and processing is to continue without a thread switch and without a task switch.” As noted above with respect to claim 10, the cited references do not disclose or suggest such a condition for increasing a maximum allowed runtime of a configuration.

Accordingly, the combination of the Borkenhagen, Smith, and Frazier references does not disclose or suggest all of the features of claim 11, and therefore does not render unpatentable claim 11.

Withdrawal of this obviousness rejection of claims 10 and 11 is therefore respectfully requested.

IX. Rejection of Claim 7 Under 35 U.S.C. § 103(a)

Claim 7 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the Borkenhagen and Smith references, in further view of U.S. Patent No. 4,959,781 (“the Rubinstein reference”). It is respectfully submitted that the combination of the Borkenhagen, Smith, and Rubenstein references does not render unpatentable claim 7, and the present rejection should be withdrawn, for at least the following reasons.

Claim 7 depends from claim 5 and is therefore allowable for at least the same reasons as claim 5, since the Rubenstein reference do not correct the critical deficiencies of the combination of the Borkenhagen and Smith references noted above.

Withdrawal of this obviousness rejection of claim 7 is therefore respectfully requested.

X. Conclusion

In light of the foregoing, it is respectfully submitted that all of the presently pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Dated: February 7, 2010

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